

AMATEUR RADIO

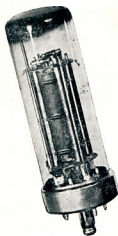
MAY
1950

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MAY 1950

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EDITORIAL



EMERGENCY OPERATIONS

Most people who use public communication systems such as telephone, telegraph or teleprinter facilities, do so almost without thought as to the acute problem which arises when such channels are rendered inoperative due to floods or bushfires.

It is not really possible to understand what an important link is provided between individuals and organisations by these means until such facilities fail and the whole community is completely cut off from contact with the outside world and is in need of medical assistance, food supplies, and other help.

Most of us know how effective Amateur Radio has been in providing such communications in time of community loss or danger, and it is fitting for us all to consider the really worthwhile contributions effected by many Amateurs during the recent floods in the Eastern States.

In no better field, apart from war service, can the Amateur show his value to the commun-

ity than in emergency service, and the congratulatory comments by the police authorities to those who assisted them so effectively by maintaining essential communications during this period proves beyond doubt that the Radio Amateur justified his existence in work of this important nature.

The Federal Executive also desires to express its appreciation of the many Amateurs who gave their time and effort to serve the community in this way and urges all those who read this Editorial to train and equip themselves to provide such facilities in the event of failure of normal communication facilities, however caused.

Elsewhere in this issue you will find the detailed stories of this work; we hope you will read of the effects of all those who took part and make up your minds to prepare and be in it when the next opportunity occurs.

FEDERAL EXECUTIVE

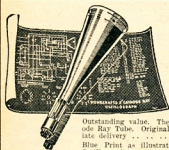
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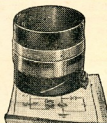
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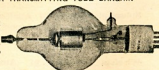


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Utilising the FS6 Tuning Unit in a V.F.O.

BY E. MANIFOLD,* VK3EM

Tuning Units from FS6 Transmitters have been obtainable from Disposal sources for a few shillings. Here is a simple method of using one of these units as a basis for a v.f.o.

V.f.o. units seem to be the order of the day; largely due to the congestion on our lower frequency channels. The ability to change frequency at will is an obvious necessity.

While nothing new or original is claimed for this unit, it does show how a useful unit can be made from parts ex-Disposals which, believe it or not, had to do a job, sometimes more vigorous and exacting than in the average Amateur Shack.

Having procured a frequency control unit ex-FS6 sometime ago and feeling the pinch of QRM when operating on the 7 Mc. band, due thought and much perusing of v.f.o. circuits was done. Having helped with the calibration of a similar unit and seen how it operated, the writer was satisfied it would do the job.

The unit consists of a 6F6G e.c.o. and 807 as doubler stage, not quite at Class "A" conditions, with the voltage regulation controlled by two VR150/30 tubes in series, which provides 300 volts + and 150 volts + for plate and screen of both tubes.

The original FS6 oscillator covered a range of 4.2 to 6.3 Mc. approximately and had two separate windings on the coil former. These are discarded and the whole of the slotted area of the coil former re-wound with 19 B. & S. or 20 S.W.G. to 27 turns with a tap for the cathode of the 6F6G at the third turn.

If the tap is brought up through a hole in the former, the tap can be adjusted on the coil to suit the best operating point; too low a tapping on the coil will not allow the oscillator to be keyed, too high a tapping on the coil will allow the oscillator to continue oscillating weakly with the key up and with poor keying characteristic chirps, etc.

Re-winding the oscillator coil and loading it with high "C" puts the fundamental frequency of the oscillator on the 1,690 Kc. to 1,900 Kc. range and permits operation in the 11 metre band and all our harmonically related bands to 30 Mc. with the addition of the necessary multipliers.

Choke coupling is used between the 6F6G oscillator and the 807 doubler stage and since this stage provides sufficient isolation from succeeding stages, the amount of frequency variation from them is small.

The output coil of the 807 stage is slug tuned and has very little capacity other than the tube capacity across the coil. This coil is tuned broadly to the 3,390 Kc. to 3,800 Kc. band, peaking of the slug to 3,500 Kc. allows sufficient drive over the whole range to excite an

807 as a frequency multiplier. It is wound with 129 turns of 34 S.W.G. close wound on a $\frac{1}{2}$ " diameter former. A link coil is wound over the earth end of the plate coil consisting of six turns of Nylax flexible 5/000 jumper wire.

The key is connected in series with the oscillator screen h.t. supply and is 150 volts + above chassis, so that due care must be exercised in handling the key and earthed points, alternatively a relay could be incorporated to isolate this voltage; the v.f.o. was primarily intended for phone operation.

The stand-by or off/on switch is in the negative h.t. lead and was intended to break the centre tapped lead of the oscillator-exciter-amplifier power supply, or use as a relay control lead by connecting h.t. minus to one side of the a.c. filament supply and using the switch to control, through relays, all h.t. supplies.

TUNING ADJUSTMENTS

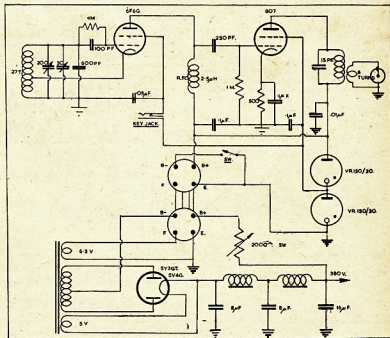
The first requirement is to see that the VR tubes are operating. Adjust the voltage dropping resistor in the power supply (from maximum resistance) until both VR tubes ignite, as much resistance should be left in series as possible consistent with reliable operation of the VR tubes.

Check for oscillation by listening on receiver and swinging the main tuning condenser from maximum to minimum

(Continued on Page 9)



Rear view of V.F.O.—The 6F6G oscillator is located on the left hand side of the chassis, with the 807 at the rear right. Located in front of the 807 is the slug tuned output coil. The FS6 tuning unit is mounted on the front panel, with a section of the front panel cut out to receive it.



Schematic Diagram of V.F.O. and suggested Power Supply.

* 267 Jasper Road, McKinnon, Victoria.

V.H.F. Wave Transmission

BY J. BAIL,* VK3ABA

Normally, radio waves, like light, travel in straight lines. Fortunately, there are various conditions which enable communication to be made over distances on the earth's curved surface far beyond the optical range. A great deal of research has been conducted by scientific bodies and individuals into the different forms of radio wave transmission and, in Australia, the Radio Research Board of the C.S.I.R. has made a great contribution to this and related fields of research. This organisation, in co-operation with other institutions, has made extensive use of ionospheric sounding equipment, much of it developed in Australia. This apparatus is used to determine the virtual height and other characteristics of the ionospheric layers, and the well known propagation bulletins are based on the information obtained from various world-wide authorities using sounding equipment.

IONOSPHERIC REFRACTION In the range 3 to 30 Mc. world-wide communication is made possible by refraction in the ionosphere, and under the right conditions radio waves are reflected back to earth from the appropriate ionospheric layer. The features of wave transmission in this range of frequencies, are described by Neil S. Smith in "Amateur Radio," December, 1948. It is noted that the region of ionised layers in the earth's upper atmosphere referred to, extends from approximately 40 to 260 miles above the earth's surface. These layers are fairly well defined and identification letters have been applied to them. Their refractive properties are found to vary mainly with the time of day, the seasons, and period of the sunspot cycle.

The shorter waves in the range are reflected by the highest layer and skip distances are consequently longer. At any one time and zone on the globe, there is a maximum usable frequency (m.u.f.) which varies with the changes in ionisation. From published reports it has been rare for communication by means of F layer transmission to be made within the 50 Mc. band.

However, the majority of long distance contacts established on 50 Mc. is made possible by an ionospheric condition known as Sporadic E or simply E. The term gives some suggestion of the patchy nature of the ionisation, being largely unpredictable, and occurring at about the same height as the normal E layer.

The lower frequencies are also affected, as the presence of short skip conditions there indicates. For 50 Mc. work many Amateurs have in fact been guided by the indications on the lower frequencies. In this connection, M. E. Collett, in his article, "What, No Beacons?" printed in "Amateur Radio," March, 1949, describes the use of the Radio Range Beacons on 33.3 and 33.8 Mc. The reader might also be referred

The subject is a wide one and will be dealt with in a general way here as applicable to Amateur work. The object is to discuss the types of wave propagation with particular reference to the 50 and 144 Mc. bands, and it is hoped also to clear up some misunderstandings which appear to exist judging by remarks heard from many Amateurs.

to the same writer's article, "Sporadic E Observations" in "Amateur Radio," November, 1949.

Occurrence of E, has been confined mainly to the summer period, with a mid-winter peak. Attempts have been made to associate the phenomenon with sunspot activity as on the lower frequencies, or certain weather conditions, etc. Despite careful observation, no definite conclusion to the writer's knowledge has been reached. The prediction charts do not cover forecasts for this type of transmission. It will be of interest to observe the E. conditions during the coming sunspot minima period.

E. occurs as intensely ionised patches with lateral movement. The result is that on 50 Mc. fading is often quite violent, communication conditions occur over random or large areas, depending on the position and degree of ionisation. The occurrence periods are by no means confined to daylight hours, as many contacts, made well after sunset, have shown. The known upper frequency limit for E, is approximately 100 Mc.

It will be noted that geometric conditions provided by the earth's radius and height of the reflecting layer, determine largely the skip distance concerned, with ionospheric transmission.

Some further phenomena are also of interest. During displays of aurora borealis in the northern hemisphere, communication over moderately long distances has been made with strongest signals obtained when directive antennae are pointed northwards irrespective of the direction of the other station. Little is known of this phenomenon on Amateur Bands in the southern hemisphere in conjunction with aurora australis.

Another effect, said to be due to meteor trail ionisation, produces short bursts of high signal strength when listening to a weak carrier.

A further effect, familiar to 28 Mc. operators, referred to as "reflected skip" or "scatter back," enables stations which are normally in the skip region, with respect to each other, to establish contact while their directive antennae are oriented in the same general compass direction, usually towards the prevailing overseas countries being received at the time. When, however, the two beams are rotated towards one another, contact is lost or becomes difficult.

On v.h.f., in the absence of E, or other ionisation phenomena, the properties of the lower atmosphere must be relied upon for some degree of distance in communication. This will be dealt with now.

TROPOSPHERIC PROPAGATION This refers to transmission of radio waves through the lower atmosphere and is subject to meteorological conditions.

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The physical horizon is a limiting factor in long distance communication on v.h.f. However, due to the normal variation of temperature and humidity with increase of height, refraction of v.h.f. waves takes place, resulting in a slight bending down of the rays. This means that the radio horizon is a percentage beyond the geometrical horizon. When two station antennae are located well within the radio horizon, the direct wave received is modified to a degree by the ray reflected from the ground or other objects. Ghost images on television screens have been caused by reflection from the metal area of a gasometer, etc.

The fluctuation of signals due to an aircraft flying in the vicinity of stations is well known. The above effects are due to the difference in phase of the received signals which arrive via separate paths. In the latter case the phase relation is varying. Such multipath conditions have at times been observed on signals received from stations located beyond the radio horizon.

In addition to the bending due to refraction referred to, an extension to the range is provided by diffraction, which may be compared to the diffraction or dispersion of light around a corner, and decreases in effect with increase of frequency. Thus frequent communication is possible over moderate distances.

It will be appreciated that antenna height, characteristics of the location and adjacent geographical features have a bearing on the range of the extended horizon. Changes in the temperature and humidity of the atmosphere cause a change in the refractive index with consequent variations in the extended horizon and diffraction area.

At times abnormal changes in the temperature and humidity gradients occur and cause refraction to increase considerably. During the recent war

the use of v.h.f. equipment for communication and radar revealed many instances of so-called anomalous propagation due to super-refraction. Taking advantage of the situation, the Radio Research Board of the C.S.I.R., in co-operation with the R.A.A.F., conducted observations on the occurrence of radar echoes at coastal stations around Australia with 200 Mc. equipment.

This took place over an approximate period of 18 months, commencing in 1944, and the report on this research project is given in the Australian Journal of Scientific Research (Physical Sciences), for December, 1948. The report is named "Super-refraction in the Coastal Regions of Australia," and some quotations are of interest.

It is stated concisely that "The normal downward bending of radio waves in the lower atmosphere increases and tends to enhance propagation to great distances whenever the lapse of temperature with height is below normal or reversed in sign (temperature inversion) and/or the decrease of humidity with height is greater than normal. Humidity effects are generally considered to be the more important in producing super-refraction."

From the evidence covering the period of observation, "it appears that super-refraction in southern Australia occurs most frequently in the rear halves of the migratory anticyclones, ceasing at a given place as the polar front, which precedes the next anticyclonic cell, passes . . ."

"It was demonstrated, for example, that super-refraction in summer often extends over a large area of southern Australia simultaneously. The effects of super-refraction are most striking in north-west Australia, where echoes from Timor (400 miles away) are received fairly frequently in some seasons and echoes at somewhat smaller ranges recur with great regularity at almost the

same time day after day." In this connection some variation from year to year might be anticipated due to seasonal meteorological differences.

Many long distance contacts have been established on 50 and 144 Mc. in the northern hemisphere as a result of similar conditions in the troposphere there. Operators of v.h.f. ground communication equipment connected with airways services have, at times, observed abnormal reception of distant signals.

The increase in numbers of Australian Amateurs on v.h.f. has provided an opportunity of taking advantage of super-refraction conditions here. For example, - Victoria-Tasmania contacts have recently been made on 50 and 144 Mc. from home stations, the first 144 Mc. contact being established on the evening of the 27th March this year.

A copy of the weather map for the morning of this date is shown and it will be seen that an eastward moving "high" or anticyclone was across Bass Strait at the time. Readers of "QST" may remember the article "Painless Prediction of Two Metre Band Openings" in the October, 1949, issue which discusses similar conditions applicable to the American continent.

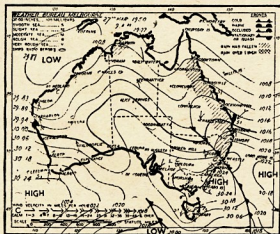
It would appear that "ducting" is associated with super-refraction conditions. The radio wave advances somewhat as though it were in a wave guide formed by two diffuse boundaries close to the earth's surface. Some frequency discrimination would therefore be expected, depending on the dimensions of the meteorological wave guide.

It is conceivable that at times a combination of different propagation conditions occurring simultaneously enables long distance communication to be made. Some particular cases on analysis have shown this to be so.

From what is known, it is obvious that, on 144 Mc., the form of wave transmission to be expected is of the tropospheric type. Transmission at this frequency via E. or F layer reflection would be highly improbable.

There is much to be learnt about v.h.f. and u.h.f. wave propagation. If you have not yet been active on these Amateur Bands, here is an opportunity to take part in an interesting phase of Amateur Radio. An increase in the number of country stations on these frequencies would provide a more even distribution of activity. If you take the initiative it will provide you with a new interest, without the necessity of abandoning your lower frequency activities.

WEATHER BUREAU CHART OF 27th MARCH, 1950



An anticyclone with its highest pressures over eastern Victoria controls the weather. With clear skies during the night, rapid cooling occurred, and caused many heavy dews, scattered mists and fogs and isolated frosts on the highlands. The chart indicates increasing high and middle level cloud, with weather becoming unsettled later in the week.

IMPORTANT

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Contributions, particularly notes, if addressed to the box number may not be received in sufficient time to be included in Magazine for the month for which they are intended.

Two Metres, Dry Batteries

BY A. K. HEAD,* VK3AKZ

This two metre transmitter-receiver was made for use as a ground station for ground to glider communication on 131.8 Mc. It also covers the 144 Mc. Amateur Band and has been used very successfully on this band. By using dry battery tubes, the awkwardness of transporting accumulators for portable operation is overcome, but, of course, the cost of operation is rather higher.

The main circuit is a conventional transmitter-receiver using a 958 battery neon as a super regen detector, another 958 as a modulated oscillator and a 1D8GT triode-pentode as a common audio section. A neon tube audio oscillator is used for m.c.w. or for generating a continuous tone for lining up the sets in the gliders.

RECEIVER The 958 is used as a self quenching super regen detector. The tuned circuit consists of the coil L1, which has 4 turns of $\frac{1}{8}$ " diameter and a 7.5 pF. ceramic trimmer in series with the 10 pF. tuning condenser. Super regeneration is smooth and works with the h.t. as low as 45 volts. No r.f. chokes were found necessary in the filament leads. The transformer T1 is a 3 to 1 audio transformer with a third winding of about 50 turns added for microphone input.

Separate volume controls are used for receive and transmit and 50,000 ohm resistors minimise interaction between them. These feed into the 1D8GT triode section which is followed by the pentode section. The transformer T2 is a miniature speaker transformer which also serves as a modulation choke on transmit, or as a choke when earphones are used in jack J2. Bias for the pentode is obtained from the 750 ohm back bias resistor.

TRANSMITTER The tuned circuit of the 958 modulated oscillator consists of the coil L2 which has 2 turns of $\frac{1}{8}$ " diameter and a 7.5 pF. zero temperature coefficient ceramic trimmer in parallel with the 10 pF. tuning condenser. On 144 Mc. the ceramic trimmer is at maximum capacity and the 10 pF. at nearly minimum capacity, giving low drift.

Heising modulation is used with T2 serving as modulation choke. For phone operation a carbon microphone is used in jack J1 using the 1.4 volt filament voltage for operation. The operation of the neon tube circuit is explained later.

T-R SWITCH This is a two wafer, two position twelve circuit switch which has been modified to give a third position (off) in which the moving contact is not connected through. Eleven of the circuits are used, four are used as the antenna change over, two on each wafer which are back to back, being paralleled, and each of these pairs switching one wire of the

300 ohm twin lead used for feeding a folded dipole. The spacing of the wafers is about equal to the width of 300 ohm line and tests by VK3NW show that the losses of this type of switching are very low, even at 580 Mc.

With the switch in the "off" position, both the A plus and B plus leads are broken. By the filament switching, the 1D8GT filament is on for both receive or transmit, but the filament of the 958 not in use is switched off. This saves 100 Ma. of filament current and since the tubes are instant heating, no time is lost waiting for the filaments to warm on changing from receive to transmit.

NEON TUBE CIRCUIT

The phone-m.c.w. switch is a three circuit, two position switch. In the phone position the jack J1 is the microphone jack and the neon tube is connected through a 3 megohm resistor to B plus. The neon is visible through a hole in the front panel and thus serves as an "on" indicator. The current drain is only about 30 microamps.

In the m.c.w. position the neon is connected to B plus through a 1 megohm variable resistance and a 0.001 uF. condenser is connected across the tube. The alternate charging and discharging of the condenser generates an audio tone, the frequency of which can be controlled by the 1 megohm variable resistor. The jack J1 is switched into h.t. supply to the oscillator in order to key it. The current drain is increased to 50 microamps when used as an oscillator.

Since the voltage available is limited to 90 volts, a neon with a low striking

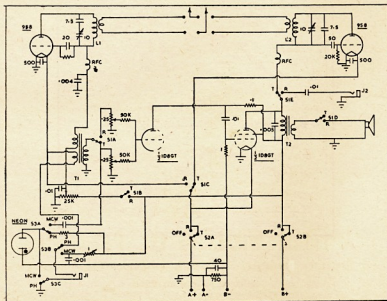
voltage is necessary. The one used was from a BC453 and strikes at about 75 volts. The negative side of the neon is connected to B minus, rather than earth, so as to avoid the voltage drop across the back bias resistor.

In use on 144 Mc. the set has worked DX up to 30 miles. The receiver can regularly hear more distant stations, but the limitation is the power output on transmit. Since the oscillator only draws 5 Ma. at 90 volts, the input is under half a watt with which it is hard to compete with 10 or 20 watts. However, the outfit does the job for which it was built very well. In place of the 958, 957s can be used. The 50 Ma. filament of the 957 is a distinct advantage and would be a preferable tube for the super regen, although as the oscillator the power output would be less. The 1D8GT has the reputation of being an unreliable tube, but no trouble has been found with the one in use here. The additional gain of the triode section is very useful which was why it was used in preference to a 3S4 or 3V4 as the filament drain is the same as the latter.

CORRESPONDENCE

Several letters have been received on the subject of the Editorial for April.

Federal Executive desire to extract information from these letters, and letters received have been forwarded to them. Several of the most interesting will be published at a later date.—Editor.



* Asst. Technical Editor, 12 Peverill St., Balwyn, E.8, Vic.

Abstracts, Overseas Magazines

"WIRELESS WORLD," JANUARY, 1950
P. 12: "Amateur Exhibition."—Review of the R.S.G.B. annual show with notes of what was on show.

"WIRELESS WORLD," FEBRUARY, 1950
P. 50: "Test Report of 'Denos' DCR19 Communications Receiver."—Test report on a receiver designed mainly for Amateur use. Rotary coil turret, 1.6 Mc. l.f., crystal filter, calibrated bandspread for Amateur bands. Circuit diagram of some parts given.

"CQ," JANUARY, 1950
P. 11: "Small Rig, Big Signal!" R. W. Clark, WORVD.—6V6 doubler string driving push pull 897a.

P. 16: "Designing the QSL!" O. L. Woolley, W6SGG.—Points on producing attractive QSL cards.
P. 18: "The Zip-Zag Array," J. W. Stodley, W2E5Y.—A compact sixteen element vertically polarised beam with a gain of over 11 db.

P. 20: "Licking the Regulation Problem!" J. Saugier, W9RSQ.—Uses vacuum tubes as keyed bleeders to stop voltage rise in c.w. riga.

P. 22: "ZC8PM Licks TV!" F. Miller, ZC8PM/WZAIS.

P. 27: "Meet the Resistor!" R. L. Rod, W2KVY.
P. 24: "Build an Audio Oscillator!" C. Welch, W5MHR.—Three valve beat frequency oscillator operating at 200 Kc. Beat frequency output from 100 to 12,000 cycles.

P. 30: "The Easy Way!" R. W. Ehrlich, W2NJR.—Building a grid dip oscillator from a commercial absorption wavemeter.

P. 33: "Selenium Rectifiers!" R. B. Richmond, W1RRA.

P. 34: "Stay Out of Jail!" F. L. McGraw, W6TSS.—Conversion of BC454 as a monitor.

P. 36: "Shack and Workshop!"—(i) Tuning your single twin loops. (ii) Antenna switching on the 75A. (iii) Keying monitor. (iv) Modulation indicator and field strength meter. (v) Mobile mike line hash cure. (vi) Regulated oscillator filament supply. (vii) Backwave getting you?

IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

MAY, 1950

Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

The Canberra charts refer to the following zone zones:—

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3a	N.-West America	San Francisco
3b	N.-East America	New York
4	Central America	Barbados
5	South Africa	Johannesburg
6	Far East	Manila

The Perth charts are similar to those based on Canberra.

QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Canberra-San Francisco circuit would be useful:—

1. Were good conditions experienced on 7 Mc. for the period 0600 to 1500 hours G.M.T.?
2. Was the 14 Mc. band workable from noon to 1800 hours G.M.T.?
3. Was the 28 Mc. band workable for several hours around midnight G.M.T.?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the months.

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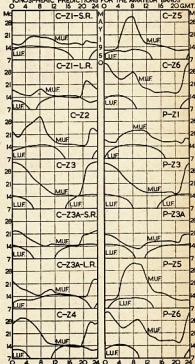
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Amateur Emergency Work During Murrumbidgee River Floods

Amateur Radio again demonstrated its value to provide communication at short notice when normal services failed at Wagga and surrounding districts during the floods of late March.

The activity could be divided into two sections: emergency communication and a relaying service for the local BC station.

Thursday, 23rd March, saw the river at Wagga almost at flood level, and VK2BW, Alf Moye, reported to the local Police that he had fixed mobile equipment ready for use if other services failed.

Already Jack McPhee (2nd op. to VK2BW and VK2AID), Fred Deppeler (VK2ANT) and Eric Moore (VK3BM) and others had installed a D.C.A. AT14 on the top floor of the local police station and using a frequency of 5330 Kc. (D.C.A.) were contacting the Army Depot at Bandianna and mobile vehicles around the area.

At 4 a.m. on the 28th, VK2BW was called out by the Police to assist and after tuning the main rig to 5330 Kc., acted as a runner, taking messages by car to those concerned, also collecting operators including Bill Jenner, 2nd op. to VK2AID, to man the Army "blitzes" and "ducks."

The operation continued for most of the day, rescuing marooned people and distributing food, etc.

Later in the morning, VK2BW was requested by the Superintendent of Police to try and arrange his station, to relay the BC programme to the transmitter site as land-line communication had failed. The transmitter was tuned to 7175 Kc. and a line provided from the studio. A 600 ohm to grid transformer fed into the modulator (n.b.f.m.). In the meantime, Geoff Hodgson (VK2ASH) was taking two dual-wave receivers out to the transmitting station by motor boat and was supposed to arrive by midday. Broadcast material was continuously transmitted by VK2BW and at 1 p.m. BC station 2WG came on the air, the transmission was not very good as the surge (at five miles) was heavy and the receiver was not coping with the n.b.f.m. very well. The system was then changed to plate modulation with greatly improved results, but interference from Amateur Stations was heavy. At 1815 hours the operator at BC station 2WG announced that Geoff Hodgson VK2ASH and his companion had arrived at the transmitter. There was some speculation as to how 2WG op., Don Harbrecht (sitting for the next A.O.C.P.), managed to receive the transmissions from VK2BW during the afternoon, as there was reputedly no receiver at the transmitting site. Don, however, who had been copying some c.w. for the A.O.C.P., had a 40 metre command receiver on the job.

The trip to the BC station by VK2ASH and his companion, Les Lidden was in itself an adventure—five miles of flood waters had to be negotiated. Most of the

journey was made by pulling themselves along wire fences and finally on foot. At one period they lashed themselves to a telegraph pole to stop being carried away. They averaged just over half a mile an hour for the journey. The broad characteristics of the command receiver accounted for most of the interference, despite good work by VK3KV and others in keeping the channel clear.

The relaying continued throughout the next day until 1715 hours, when an alternate route was used to restore land-line facilities. Telephone communication out of the town at the time was in bad shape and the BC station did much to relieve the uneasiness of the folks in the area.

At the conclusion of the work for the BC station, the Superintendent of Police requested that a radio link be established with the next town likely to be affected, namely Narrandera. Accordingly the AT14 was dismantled from the Police Station and transferred by "duck" to Narrandera. VK2BW's main transmitter took its place and a direct telephone line installed from the Police Station to VK2BW's operating desk. Traffic handled included food orders and messages to the Army Depot at Bandianna, the North Wagga Police Station where VK2AID's modulator was in use, the Aeradio Station at Alstonville and radio controlled "blitzes" and "ducks" operating in the area, and later at about midday with the Narrandera Police Station. The link was maintained all Sunday night, Monday till midnight, and finally closed at 1900 hours on Friday. VK2BW was manned by an enthusiastic high school boy, Brian Mitchell, during the day and by Hams and D.C.A. operators at night. VK2ANT did the midnight to dawn watch on Sunday.

Mal Robinson (VK2HT), who was marooned at Wagga, did some good work helping the evacuation and was requested by the Police to take VK2BW's Type 3 Mark II. to Darlington Point. As this was xtal controlled, the new frequency of 5050 Kc. was adopted all round. Mal was taken by air to Narrandera, by "duck" to Leeton, and arrived at Darlington Point on Thursday. The gear was set-up on top of the local hostelry. Communication was mainly made with Narrandera and with the "ducks" which had arrived in the area.

Signals between the main station's AT14 at Narrandera, AR8/AT5 at Bandianna, and TA12 at VK2BW, varied from S7 to S9; while the "ducks" using Type 19s were from zero to S5.

Receivers in use were an AR7 at VK2BW and BC312 at Narrandera which was loaned by VK2ANT. The Type 3 Mk. II. was again in use up the river as a warning station as the river was again rising.

Many Amateurs co-operated, some in the course of their official duties. They

included VKs 2ANT, 2AID, 2ASH, 2BW, 2HT, ex-3BM, ex-2MX, ex-3KJ, 2RB and Allan Williams and Maurie Harrison whose call signs are not known.

As a finale to the 2WG episode, VK2BW and his XYL were presented with an inscribed entree dish at a ceremony at the studios. Due credit was given to the Radio Ham for the work performed during the crisis.

The local Amateurs and radio enthusiasts very sincerely thank the Police, the Telephone Branch, and the D.C.A. for their wonderful co-operation and encouragement given them during the critical period.

Thus is written another episode in the history of the Australian Amateur, but it is not really complete, because at this moment out in Western N.S.W. other Amateurs are continuing the emergency work. It is hoped to have the full story of their endeavours in the assistance of the public available for next issue.

— . . . —

UTILISING FS6 TUNING UNIT AS A V.F.O.

(Continued from Page 3)

capacity. If no signals are heard, couple the receiver fairly close to the v.f.o., as being shielded, very little signal is heard on 7 Mc. and higher, however assuming a check is being made on 3.5 to 3.8 Mc., some second harmonic signal should be evident. If not, check for oscillation by inserting a grid meter in series with the oscillator grid leak and adjust the cathode tap for oscillation.

Once oscillation is established, adjustment of the tuning slug in the oscillator tuning coil will bring the tuning range into alignment with about 20 Kc. to spare at each side of the 3,390 Kc. to 3,800 Kc. range.

The small trimmer condenser which is part of the FS6 tuning unit is left at maximum capacity, though it could be removed if desired, having very little effect, of course, with approximately 600 pF. across the tuned circuit.

Having tuned the oscillator to the desired frequency coverage, the doubler output coil can be adjusted for maximum output at approximately 3.5 to 3.6 Mc.

This was done by connecting a 6-8 v. 3 watt globe across the link coil and adjusting the slug tuning to peak the output of the 807 to approximately 3.5 Mc., at which point the globe was almost full brilliance, dropping off at each side to about half brilliance, indicating an output of approximately 1½ watts at the extreme high and low frequency ends of the range with almost 3 watts at 3.5 Mc.

The frequency of the unit was calibrated in 10 Kc. steps and with the arrangement of the FS6 unit, allowed quite good re-set points throughout the 3.5-3.6 Mc. range, which is the most used part.

All by-pass condensers, resistors, and miscellaneous other parts, including the aluminium for the chassis, are ex-Disposals.

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The system of clamping has been designed for solid and air spaced 1" diameter cables. Uniradio 32 and "Belling-Lee," list No. L 600, frequently used for television, are particularly easy to load.

The characteristic impedance of the plug/socket combination is of the order of 50 ohms. As the component is primarily intended for television, the mis-match is insignificant. The self-capacitance, however, is very important and this has been kept as low as 1.5 pF. at 45 Mc.

A particularly useful application is for the aerial input circuit to car radio installations where low capacitance is of the greatest importance. The "click" action prevents accidental withdrawal under vibration.

Dimensionally, this component complies with the recently approved R.C.M.F. standard for a plug and socket to provide the input connections to domestic television receivers where co-axial feeders are used.

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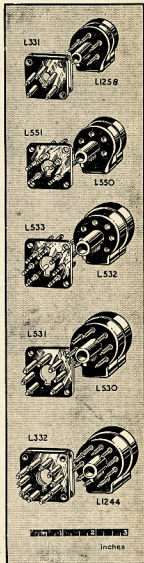
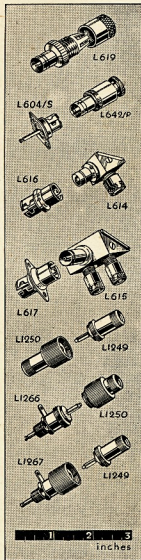
These carefully designed connectors are specially suitable for connecting power pack to chassis, amplifier to receiver, and particularly for rack built equipment, etc., but their application to the electronic and electrical industry is very wide. They really do go together nicely, all pins making contact every time. All metal parts are silver plated, giving low resistance contact and facilitating soldering. The flex part is in black moulded bakelite with locating key and side entry, to discourage withdrawal by pulling cable.

"O-Z" pins rated at 10 amps. can be coupled with eyes shut; single screw assembly. The socket panel is punched from sheet bakelite; standard fixing holes; two contacts are widely spaced for carrying mains voltage. Plugs and sockets are provided with sensible solder spills. These components are well worth using even with idle pins.

L331 and L332 have a shield panel raised well above the socket panel to ensure safety. With these types no single pin can make contact until the locating key has found its correct position.

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THE "COMMANDER" DOUBLE CONVERSION RECEIVER

For the last week we have had the pleasure of testing the "Commander" communication receiver under actual Amateur operating conditions. This English manufactured receiver has obviously been designed with the needs of the Amateur well in mind, and our very exacting requirements well catered for, as is evidenced by the excellent bandwidth, sensitivity and selectivity provided.

Dealing first with the technical specification. The receiver uses the double conversion principle, the first I.F. frequency being 1600 Kc., and the second I.F. 160 Kc. The b.f.o. is applied to the 100 Kc. stage, and very great stability is therefore obtained on c.w.

which is loosely coupled to the first 100 Kc. transformer previously mentioned (sharp). Variable capacitors are inserted in series with the I.F. grid lead to adjust the signal output to a constant level and are provided for the broad and medium wave sections only. This selectivity control is most definite in its operation. The medium position giving the approximate equivalent of a 455 Kc. I.F. channel. An interesting point about the sharp selectivity position on c.w. reception was the pronounced single-sideband effect, which is familiar to users of the Q'er.

With the b.f.o. pitch control set to one side of the zero beat position, a pronounced single-sideband effect is apparent, as on tuning through a signal on the main dial, a best note will be heard on one side of the carrier only. If the b.f.o. pitch control is set to the other side of zero beat, the opposite side of the carrier is eliminated. This is a demonstration of the high degree of selectivity available, and is very useful in eliminating strong interference on one side of the wanted signal.

A noise limiter is provided which automatically adjusts itself to the carrier level and when switched on clips at 100 per cent. As the control is turned clockwise, clipping occurs at progressively higher levels, reaching up to approximately 20 per cent.

The speaker output transformer is mounted in the receiver and output terminals are provided for a 2-3 ohm loud speaker, which when plugged in the phones automatically mutes the speaker output. When the phones are plugged in, a 3 ohm resistance is connected across the secondary. However any Amateur would have no and the phones connected across this resistance. The output available to the phones is reduced considerably by this method, a little too much it is felt, and this is the only adverse criticism which could be made on an otherwise excellent receiver. Wiring of the speaker transformer difficult in making the slight wiring change necessary to overcome this if he felt the phones output needed boosting.

So far no mention has been made of the ranges and bandwidth provided, but it was here that we were extremely impressed with the neat way in which the difficult job of providing a wide range of general coverage was overcome. The main tuning gang, has three main sections and, in addition, a small double spaced condenser is mounted in each section and rotated by the same shaft and dial mechanism. Separate stators are used, and leads from them are taken straight down through holes

on a slide rule with the contacts arranged on either side. It can be seen that this type of switch reduces the length of leads to a minimum. For Amateur bandwidth the knob is pushed in, and pulled out for general coverage.

The main five-position bandwidth is mounted below this general coverage/Amateur band switch, and by the method outlined above the receiver becomes a five-band bandwidth receiver for Amateur bands only with wide coverage for general coverage. The different bands being selected by the normal bandwidth.

The Amateur bands are calibrated on the five outer scales of the large main dial, and the general coverage on the four inner scales. Note that the range switch is not used for general coverage use.

On Amateur coverage only, a small trimmer is provided across the oscillator section of the receiver for setting the calibrated scale. This is best done by putting the station frequency meter on a known frequency, setting the dial to this frequency, and then tuning in the signal on the oscillator trimmer. Air trimmers are provided in the coil box for setting each range so that only a slight adjustment of the panel control is necessary when changing bands. Bandspread is excellent, the ranges and general coverage being as follows:—

Range	Bandspread	General Coverage
1	3.5—3.8 Mc.	1.7—4.0 Mc.
2	4.0—4.3 Mc.	4.0—6 Mc.
3	14.0—14.4 Mc.	7.0—15.0 Mc.
4	21.0—21.45 Mc.	None
5	28.0—30.0 Mc.	15.0—20.0 Mc.

An aerial trimmer is provided for the adjustment of the input circuit, and also a send-receive switch for changing from receive to transmit. A pair of terminals are provided at the rear for connection to the transmitter relays. No detuning effects are present when changing from transmit to receive.

As seen in the photograph of the top view of the chassis, the coil box is separately mounted in the centre of the main chassis, and is connected to the remainder of the wiring by accessible tag connections. The r.f. and i.f. converter tubes are mounted on the coil box, and the sockets are connected to the main cross shields to also shield the sockets. All coils are slug tuned and also air trimmed for good tracking.

Referring again to the top view, the adjustment slugs and trimmers for all coils are accessible from the top, which is a great convenience for alignment. The only trimmers which have to be adjusted from underneath are the Amateur bandwidth trimmers. The aerial trimmer is rotated by the long shaft to the left of the coil box.

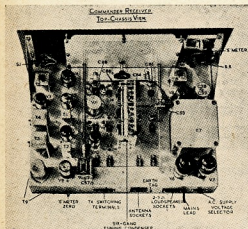
In the top rear view, the left hand row of components, reading from rear to front panel are: 2nd converter, two 100 Kc. variable selectivity transformers, 100 Kc. i.f. amplifier, 100 Kc. i.f. transformer, and stand-by switch on front panel. Second row from the left: voltage regulator, 1600 Kc. I.F., 1600 Kc. I.F. amplifier, 1600 Kc. 1st i.f. transformer, detector, twin diode noise limiter. To the rear right of the coil box we have output tube and rectifier, then power transformer and in front, b.f.o. tube and coil. The illuminated meter is mounted on the front panel with the c.w. switch underneath.

The underside view components can be identified from the top view. The main points of interest being the general coverage/Amateur bandwidth switch contacts, just visible under the main switch. The selectivity switch, rotated by the main shaft, to the right, the second oscillator coil in its can at the lower right, and the speaker output transformer to the lower left.

Terminals are provided on the back drop of the chassis for speaker, send-receive relay, mains voltage adjustment, antenna connections, and "S" meter adjustment. The receiver is mounted in a black crackle steel cabinet. The rear front panel being heavy steel plate suitably engraved. A removable panel is provided under the cabinet to enable the necessary adjustments in the Amateur band trimmer in the coil box to be made without removing the receiver from the cabinet.

Finally one cannot fail to be impressed with accessibility of all components and it is obviously designed for ease of servicing. This receiver should appeal to the SWL who hopes later to become an Amateur, his receiver will not then be inadequate for its Amateur role.

We are indebted to Mr. Allen, of Bright Star Radio, for making this receiver available for test.

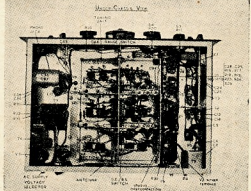


The valve complement is as follows:—r.f. amplifier 7HT, first mixer X81, 1600 Kc. I.F. 7HT, second mixer X81, 100 Kc. I.F. amplifier 7HT, detector and a.f. amp. 7RT, noise limiter 6H6, 6A5, 6J5, audio output 6F6, rectifier 5Y4, neon stabiliser 7475, making a total of nine tubes plus rectifier and stabiliser. With this tube line-up, sensitivity is between 1 and 2 microvolts input for 50 milliwatts output. A.v.c. is applied to r.f., 1.6 Mc. I.F., second mixer, and 100 Kc. I.F.

With the single r.f. stage and 1600 Kc. first r.f. the image rejection is better than 30 db at 30 Mc., increasing to over 70 db at 2 Mc. On test no trace of images could be found even with strong local stations operating close at hand, on the 10 metre band; and on DX stations the signal to noise ratio was extremely good, whilst the stability proved to be excellent. These tests were all made on the 10 metre band as it was felt that any weakness would be more obvious at the higher frequencies. C.w. reception on 10 metres showed that the 1st, 2nd, and b.f.o. oscillators were rock steady, and a severe test of any receiver, because to obtain clean stable c.w. on 10 metres is a real problem in design, and says a lot for the mechanical and electrical stability of this receiver.

Operation on the lower frequencies was extremely satisfactory, as was to be expected after the results obtained on 10 metres and it was obvious that both the c.w. and phone man were well catered for. No trace of any radiation from the 2nd oscillator could be found, most unusual as all double conversion enthusiasts will agree.

Three positions of selectivity are provided. Broad, 10 times down at 4 Kc. off resonance; Medium, 10 times down at 21 Kc. off resonance; and Sharp, 10 times down at 13 Kc. off resonance. It is interesting to note that the signal level remains constant at these three selectivity positions. This variable selectivity is obtained by taking the grid of the second i.f. amplifier from either the plate of the second converter (broad), secondary of the first 100 Kc. i.f. transformer (medium), or from the secondary of an additional 100 Kc. i.f. transformer,



in the chassis. Mounted immediately under the chassis is a long insulated strip, which terminates in a push button on the front panel under the main tuning dial. Suitable contacts are provided to skin coil contact to switch the coils to either the small or large condenser in each section of the main gang, as the strip is pushed in or pulled out by the knob on the front panel. The switch is virtually one which works like the slide

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FEDERAL, CSL, and DIVISIONAL NOTES

Federal President: W. R. GRONOW (VK3WG); Federal Secretary: G. M. HULL (VK3ZS), Box 2611W, G.P.O., Melbourne.

NEW SOUTH WALES

Secretary—Maurie Butler (VK3AN), Box 1794 G.P.O., Sydney.
Meeting Night—Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney.
Divisional Sub-Editor—A. C. Pearce, 131A Balmoral Road, Leichhardt, N.S.W.
Zona Correspondents—**North Coast & Tablelands:** J. M. Fretwell, VK2KO, Raleigh, Newcastle; H. Whyte, VK2AHA, Vale St., Birmingham Gardens, Newcastle; Coalfields and Lakes: H. Hawkins, VK2YL, 27 Comfort Ave., Cessnock; **Central:** H. Butt, R. E. E. Cumby, Warrumbungle, 38 Park Rd., Cessnock; **South Coast and Southern:** R. H. Bayner, VK2DO, 42 Pettit St., Yass; **Western:** A. C. Pearce, VK2ARB, 48 Harrabrook Ave., Five Docks; **Eastern:** H. Kerr, VK2AX, No. 4 Flat, 144 Hewlett St., Brompton; **North Sydney:** L. D. Cuffe, VK2AM, 79 Military Rd., Kurnell; **George:** J. A. Ackerman, VK2ALQ, 32 Park Rd., Cessnock; **South Sydney:** V. H. Wilson, VK3IV, Cr. Wilson St. and Marine Pde, Maroubra.

VICTORIA

Secretary—C. C. Quinn, VK3WQ.
Administrative Secretary—Mrs. S. May, Law Court Chambers, 191 Queen St., Melbourne, C.I.
Meeting Night—First Wednesday of each month at the Radio School, Melbourne Technical College.
Zona Correspondents—**North Western:** R. E. Treble, VK3TL, 123 Victoria St., Kerang; **Western:** A. C. Waring, VK3WY, 12 Skene St., Stawell; **South Western:** W. H. Ross, VK3UT, Ballarat; **Warrambungle:** North Sydney: J. A. Miller, VK3ABG, "Erinvale," Avenue; **Far North-Western:** Zone: Harry Dobbyn, VK3MP, 12 Walnut Ave., Mildura; **Eastern:** H. O. Kellas, VK3AHR, Tinsam.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official broadcasts.

VK2WI—Sundays, 1100 hours EST, 7196 Kc. and 2800 Kc. EST, 50.4 Mc. No frequency checks available from VK2WI.
Intra-State working frequency, 7175 Kc.
VK3WI—Sundays, 1130 hours EST, simultaneously on 8380 and 7196 Kc. and re-broadcast on 50 and 14.4 Mc. bands. Intra-State working frequency 7185 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI—Sundays, 0900 hours E.S.T. simultaneously on 3746 Kc., 7196 Kc., 14345 Kc., 32.4 Mc. and 14.138 Mc. Frequency checks are given two nights weekly, and the times are announced during the broadcast. 7065 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4 query service to VK4WL.

VK5WI—Sundays, 1000 hours SAST, on 7196 Kc. Frequency checks are given by VK5WD on Friday evenings on the 7 and 14 Mc. bands.

VK6WI—Saturdays 1400 hours, Sundays 0930 hours WAST, on 7196 Kc. No frequency checks available.

VK7WI—Second and Fourth Sundays at 1000 hours E.S.T. on 7196 Kc. No frequency checks are available.

QUEENSLAND

Secretary—W. L. Stevens, VK1TB, Box 6382, G.P.O., Brisbane.
Meeting Night—Last Friday in each month at the Y.M.C.A. Rooms, Edward Street, Brisbane.
Divisional Sub-Editor—F. H. Shannon, VK4SN, Minden, via Rosewood.

SOUTH AUSTRALIA

Secretary—E. A. Barber, VK5MD, Box 1234K, G.P.O., Adelaide.
Meeting Night—Second Tuesday of each month at 17 Wymouth St., Adelaide.
Divisional Sub-Editor—W. W. Parsons, VK4PS, 483 Esplanade, Henley Beach.

WESTERN AUSTRALIA

Secretary—W. E. Coxon, VK6AG, 7 Howard St., Perth.
Meeting Place—Padbury House, Cnr. St. George's Ter. and King St., Perth.
Meeting Night—Watch the Monthly Bulletin.
Divisional Sub-Editor—George W. Ashley, VK6GA, 33 Mars Street, Carlisle, Western Australia.

TASMANIA

Secretary—R. D. O'May, VK7OM, Box 371B, G.P.O., Hobart.
Meeting Night—First Wednesday of each month at the Photographic Society's Rooms, 165 Liverpool St., Hobart.
Divisional Sub-Editor—G. D. P. Clarke (VK7TA), c/o 710, 82 Elizabeth Street, Hobart, Tas.
Northern Zone Correspondent—R. H. Kilby, VK7RK, 5 Galvin Street, Launceston.

FEDERAL

20th ANNUAL FEDERAL CONVENTION

The 20th Annual Federal Convention of the W.I.A. was held over the Easter period, 7th-10th April, in the Victorian Division's rooms and 41 agenda items and 11 general business items were considered by delegates from all States. Those present were from Federal Executive: Mr. W. Gronow (2WG), Federal President; Mr. G. Glover (3AG), Federal Vice-President; Mr. P. Evans (30Z), Federal Treasurer; Mr. G. Manning (3XJ), Federal Publicity Officer; and Mr. W. Mitchell (3UM), retiring Federal Secretary. The new Federal Secretary, Mr. M. Hull (3ZS), was also present and copious notes of the Convention including the motions and their outcome, which recording will be made available to all Divisions for the general meetings and will serve a useful purpose in indicating to all members the deliberations of the Convention.

The Annual Dinner was held on Saturday night at the Hotel Cecil and attended by the Chief Inspector (Wireless), Mr. J. Martin, who gave a short address on amateur matters and the happy relationships between the Department and the Federal Executive (much to those members' embarrassment). Mr. J. Marsland kindly invited delegates to spend the evening at his place, where a good dinner was had by all who attended.

The relevant sections of the Convention determinations will be printed in next month's "A.R."

FEDERAL SECRETARY

Due to Army duties abroad for a period of two years, the present Federal Secretary, Mr. Bill Mitchell, has had to resign, and Mr. Max Hull (VK3ZS) has consented to undertake the job. To Max we all extend our fraternal greetings for his progressive period in the office, and to Bill our best wishes for a happy sojourn overseas, and a safe return to his native land in due course.

DX C.C. LISTING

The Awards Committee submitted a new set of Rules for the DX C.C. which were approved by all Divisions, and will be printed in the next issue.

The new Rules clarify a number of anomalies that existed in the present ones. Applications received before the date of publication of the Rules will be judged on the present Rules.

PHONE

VK3JD (1)	36	143
VK3K (4)	37	124
VK3BU (2)	37	133
VK3BE (3)	36	129
VK3EE (10)	125	
VK4JP (8)	114	
VK4DD (6)	113	
VK4KS (9)	113	
VK4LN (11)	112	
VK4HR (12)	35	107
VK2ADT (13)	102	
VK3IG (5)	100	
VK3JE (7)	100	

C.W.

VK3BE (6)	40	165
VK2EO (2)	40	152
VK3CN (1)	40	161
VK4EL (9)	40	140
VK3RB (10)	39	138
VK3GL (4)	40	135
VK3RK (3)	39	122
VK4HR (8)	40	126
VK3FH (15)	38	126
VK3RK (3)	39	122
VK4RP (11)	35	119
VK6RU (18)	37	116
VK3UM (15)	37	115
VK4DA (7)	38	112

New Member:

VK1LJ (24)	100	
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OPEN

VK3BE (4)	40	169
VK3 (1)	40	167
VK6RU (8)	39	166

W.I.A. ACTIVITIES CALENDAR

- May 7: Minutes of 20th Convention issued.
- June 3, 4: 1950 Trans-Tasman Contest.
- June 7: Ratification of Convention items due with F.E.

COUNTRIES LIST

We hope to be able to publish under this heading from time to time, stations which are of doubtful prefixes and those known to be pirates or not where they purport to be.
UA3BD/UP2—Not in Lithuania as prefix would indicate, but in White Russia or Byelorussia.
VR1AZ/VR1B/VR1—Allowable under KB6, Canton Island and not as British Phoenix Islands.
CZ3AC—Not in Monaco as alleged, but in Switzerland.

VU4C—A.R.C.I. advise not in Andamans as supposed as VU4 prefix allotted to University stations.

All PX stations—Those that have been heard so far are not legitimate or even believed to be there.

SP stations—From the R.S.G.B. it is news that all pre-war stations are pre-war SPs, and SPs are post-war stations. SP stations are not yet allowable as information is awaited on Polish boundaries.

OE stations—Not at present allowable, but will be under new Rules.

VK4SL/VR4—Pirate and not licensed by P.M.G.

We are in possession of a lengthy list of alleged overseas pirates and define information in the respect would be appreciated by the Awards Committee, Box 2611W, G.P.O., Melbourne, who would be pleased to have such evidence.

CONTESTS—TO BE OR NOT TO BE!

Contrary to expectations, replies are now coming to us on our provocative Editorial of last month which at least indicates that someone does read them! One is from a well known listener and the other from a licensed Amateur, but what of the top Contest men who from their very top, What about it, fellows? Surely you have words on this subject.

CHANGES TO AMATEUR CALL SIGNS

Arrangements have been made with the P.M.G.'s Department to publish monthly amendments, and the first of these is as below. This list is supplementary to Supplement No. 2 and includes alterations to the 1st March, 1950.

New Issues—

- VK2ACI—G. E. Whiting, 16 Loudon St., Five Dock.
 2A0S—R. E. Schneider, Munnell Falls, Eumungerie.
 2API—N. A. Lofman, 14 Romani St., North Parramatta.
 2APS—S. Smith, 50 Upper Street, Tamworth.
 2AQM—N. O. Myers, 115 Brasside Rd., Wentworthville.
 2ARQ—R. S. Gurr, 10 Kara St., Randwick.
 2AVQ—G. V. Gabriel, 39 Narooma Rd., Northbridge.
 2AWG—W. J. Grant, Englands Rd., Boambee, via Coffs Harbour.
 2AWN—V. J. McMillan, 26 Waters Rd., Naremburn.
 2AYB—D. E. Evans, 21 Sandridge St., Bondi B.
 2AYP—H. Y. Powell, 9 Russell Ave., Wahroonga.
 VK2NR—C. H. Randt, 19 Nimmo St., Essendon.
 30M—K. S. Fisher, 81 Neerim Rd., Caulfield.
 30P—R. J. Fleming, 25 Westgate St., Oakleigh.
 3ACP—J. A. McCloy, 26 Derby St., Camberwell.
 3ADP—D. C. Paine, 10 Byron St., Moonee Ponds.
 3AFP—L. B. Fisher, 6 Children St., Kew.
 3AGP—E. G. Pont, 76 Gladstone St., Kew.
 3AGT—S. W. Ferguson, Miller St., Tongala.
 3AKK—J. B. Kellher, 3 Paine St., Newport.
 3ALE—L. Elison, 16 Collet St., Shepparton.
 3ALM—M. E. Dixon, 430 Graham St., Port Melbourne.
 3ALX—J. R. G. Harris, 146 Patteson Rd., Moorabbin.
 3ALY—L. J. McKay, 40 Forrester St., Essendon.
 3ALZ—R. F. Miller, 76 Latrobe St., Warragul.
 3ANM—L. N. Macalish, Eltham Rd., Warrandyte.
 3ANP—K. J. Parker, Carlsbrook.
 3APC—The Moorabbin and District Radio Club, c/o Public Library, Point Nepean Rd., Moorabbin.
 3AWB—W. Brownhill, 22 Glenmorgan St., East Brunswick.
 3AWD—J. W. M. Davey, 37 Weatherall Rd., Cheltenham.

- VK4AL—Major C. Allen, c/o Chief Signal Officer, Northern Command, Vile. Barracks, Brisbane.
 4DF—B. D. Prosser, 9 Pound Hill, Gympie.
 4JQ—J. M. Rose, 45 Liverpool Rd., Cayfield.
 4MS—R. K. Sullivan, c/o Charlons Hotel, Annerley.
 4QI—F. T. Hine, R.A.A.F. Station, Garbutt.
 VK4BJ—J. A. Hampel, Berri.
 5BV—R. C. Howland, c/o D.C.A. Mess, Darwin, N.T.
 5DK—D. H. Kelly, c/o Mrs. Belverd, 23 Kirkcaldy Rd., Henley Beach.
 5EN—A. R. E. Nitschke, 192 Ellen St., Port Pirie.
 5FP—F. C. Parcell, 429 Esplanade, Henley Beach.
 5GT—R. J. Chamberlain, 3 Clifford St., Lockleys.
 5KS—R. A. Sedunary, 28 Pirie St., Solomonstown, Port Pirie.
 5WD—A. S. Condon, Laura.
 VK6LI—L. Stage, 52 Esperance St., Victoria Park.
 6TY—A. V. Savory, 253 Vincent St., Leederville.

Alterations—

- VK2EK—13 Stapleton St., Wentworthville.
 2EO—34 William St., Hornsby.
 2KI—22 Sofald St., Punchbowl.
 2KK—249 Glenmore Rd., Paddington.
 2LB—383 Cabramatta Rd., Cabramatta.
 2ML—16 Green St., Grunulla.
 2MX—65 Currawong St., Young.
 2NB—65 Chisholm Ave., Belmore.
 2ND—15 Anthony St., Croydon.
 2OP—358 Catherine St., Leichhardt.
 2QP—9 Banks Rd., Newport.
 2SP—38 Queens Rd., Cammells Point.
 2YV—109 Springdale Rd., Killara.
 2YM—90 Spoforth St., Greenvale.
 2ZT—9 Russell Rd., New Lambton.
 2AAM—32 Hill St., Belmont.
 2ACM—80 Roslyn Gard., Elizabeth Bay, Sydney.
 2ACW—19 Trafalgar St., Stanmore.
 2ADR—78 Flers Ave., Earlwood.
 2AJS—c/o Mrs. Beatty, 66 George St., South Grafton.
 2AKH—S.S. "Moors," c/o Adelaide S.S. Co., 22 Bridge St., Sydney.
 2AKV—26 Page St., Botany.
 2ALG—3 Lytton St., Wentworthville.

- 2ALW—c/o Post Office, Darby's Falls, via Coffs.
 2AMD—Ocean St., Winding.
 VK3AH—"Ashburton," 14 Vernon St., Croydon.
 3EX—209 Mitcham Rd., Mitcham.
 3EZ—Walra Rd., Mount Park.
 3HQ—17 McLean Ave., Bentleigh.
 3LA—22 Pope Rd., Blackburn.
 3LC—Main Side, Vic.
 3LY—97 High St., Glen Iris.
 3LL—Wireless Station, Ballan.
 3NS—Brian Street, Bentleigh East.
 3RX—Flat 9, 21 Adams Street, South Yarra.
 3TV—"Carriem," Warrigall Road, Holmesglen.
 3TM—14 Wheatland Road, Malvern.
 3TP—102 Murray Road, East Preston.
 3UG—Nepean Road, Rye.
 3WV—12 Kinsale Cres., Box Hill North, E.12.
 3AAX—13 St. Andries St., Camberwell, E.8.
 3ADP—95 Canterbury Road, Middle Park.
 3AGB—McCallum Street, Swan Hill.
 3AL—50 Oremund Road, Elwood.
 3ALN—C. Blackley St. and Rich Ave., Noble Park.
 3ALY—107 Woodland St., Essendon.
 3ANX—8 Finlay St., Albert Park.
 3ARL—Cr. Darlington Rd. and Hawker St., Stawell.
 3AVK—9014 Eyre St., Ballarat.
 VK4EW—"Strathgibbey," Vowles St., Red Hill.
 4FH—Malcolm More, N. Mackay.
 4GH—170 Pallas St., Maryborough.
 4HS—24 Bridge St., Albion.
 4NY—Boudry Rd., Camp Hill.
 4SD—11 Ruby St., Kibbin, South Brisbane.
 4SM—14 Mile Cook Highway, via Cairns.
 4TB—Stoneleigh St., Coopers Gap.
 4WO—31 Park Rd., Yeronga, Brisbane.
 VK5AK—125A Grange Rd., Beverley, Kilkenny.
 5JD—49 Farnham Rd., Keswick.
 5JP—132 Winston Ave., Cudmore Park.
 5JT—15 Patavilonga Fringe, North Glenelg.
 5LS—43 Rose Place, Springbank.
 5PK—Rose St., Cudmore Park.
 5RA—c/o P.M.G. Department, Station 5DR, Darwin, N.T.
 5SB—118 O'Connell St., North Adelaide.
 5UX—Kulpara.
 VK6AZ—11 McMillan St., Victoria Park.
 6BG—77 Hooker St., Swanbourne.
 6FB—37 Seith Ave., Essendon.
 6GU—94 King St., Boulder.
 6GY—129 Abbott St., Scarborough.



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been proving interesting for 3IC, new work Bob with the 28 etc. The c.w. reports here tell me we are nice to 7 Mc. c.w., but it is virtually an unknown language. I know (you I hang my head in shame). 3ALG still improving his modulator, you must be nearly as happy as I. 44B and has now been joined by 3ABE who is using an SCR522 and with good results. 3BW has created a G5G and 3HG dropped in to have a look. Underneath 3HIO was portable recently was it Pt. Lonsdale Neil?

3CM and 3ABK seem to have shaken the homies out of their slumber. 3CM is operating a Type 3 Mk. II. from the front of his house, but thinks his antenna is letting him down. 3SE operated portable from Warrnambool over Easter and 3AMH took 3ALM and 3SV to Mildura and operated portable there. Very good results were obtained all over VK with the 9 watt input to folded dipole. 3CM and 3ABK took the roads under the table and getting bogged in the 140. 3AMH took 3SV down a medium and proceeded to split pipes while 3ASV discovered an aptitude for golf and this sport looks like displacing the fishing routine.

A chat with 3GR recently, he tells me his 20 metre boom rises soon, but will be different to the others in that the tower will swing down to lower the boom to the ground and 3GR will be a neat idea and ideal for experimenting. 3MH heard occasionally on 7 Mc., but rarely on 14 Mc. now, supporting 3GR. 3GR is a very good operator. DX. 3ABK heard punching the key on 14 Mc. c.w., but finding that to can live as cheaply as one, it is not heard quite so often. Congrats Vic and best of luck.

QUEENSLAND

The 18th Annual General Meeting of the Queensland Division took place at the Y.M.C.A. Building on Friday, 24th March, 1950. There was a fair attendance to the meeting were G3CUD, VK1FE, and VK4OH.

The election of office-bearers for the coming year resulted as follows—President: 4FR; Vice-President: 3KB; Secretary: 4TB; Treasurer: 4WJ; Station Manager, Technical Director and Emergency Communications Manager: 4FN; Country Representative: 4W; Local Representative: 4EL and 4BC; Sub-Editor: 4SN; Student Representative: Mr. Moore.

180 ballot papers were sent out and only 78 were returned. It is very poor response and it is difficult to understand why members do not take a more active interest in the government of the W.I.A.

PRESIDENT'S REPORT

In his Annual Report, the retiring President, 4AW said: "This is the occasion of the 18th Annual Meeting of the Queensland Division. The past year has not been one of tremendous activity, but more of a settling down period. Overall membership has remained much the same as at the beginning of the year except that the membership has increased. The present position being that the country has a slight lead on the city, with places increasing responsibility on the country representative.

"Activities during the year have been confined to the various contests held, and have been reasonably supported. No D/F or field days have been organized during the past year, but we would do so in the near future. The past year has been a very busy one. V.H.F. activity took a sudden burst on 50 Mc. last season and several members succeeded in working the States and several others got their W.A.S. Certificate. Several did very well during the recent Contest, one member having made the highest score and winning the trophy. 144 Mc. activity has been very quiet, but a few have been boosted by field days or some sort of organized activity.

"Several more members have worked their 100 countries and have been added to the DX C.C. list. "The Emergency Network has been established and is now on a fairly sound footing. Excursions have been organized and participants have been very enthusiastic and should the occasion arise, we are sure that those responsible will put up a good performance and prove their worth.

"The success of the 'Amateur Radio' had to be increased, but this was understandable in view of ever rising costs. The publishers now appear to be basing their calculations on a higher price for its way. Some local facts and figures however have been unearthed which will be passed on as food for thought in an effort to reduce production costs. The picture has been seen by some members of this Division and were very acceptable, but more are needed.

"Constitution. The rules of this Division, as Council have been aware for some time, need revising in many ways, and it is hoped, with the help of the recently conducted gallop poll and the latest proposed Federal Constitution that the Committee assigned the job of attending to this will be assisted considerably in the work and be able to finalise something in the very near future.

"Finance.—The financial position at the moment is not in a particularly healthy condition, although it presents a truer position than at any other period of the year. One of the reasons for this is the conditions fall due on the one date. Council moved wisely when it decided to reduce its rent commitments during the year, but because of the conditions would be well advised to study closely any means of reducing expenses where possible, without seriously affecting service for the next year. We must therefore look for some savings in every line and review cost of QSL Service for the year, £4/12/4. Surely a record low for the service rendered to members and the QSL officers are to be commended for their efforts.

"Students.—Student classes have been entered for on a voluntary basis over the past 12 months. This unfortunately has the limitations. Scarcity of more instructors and lack of suitable demonstration equipment has not improved the lot of the students. A committee has been formed to look into the possibility of placing the classes on a semi-paid basis. It is expected the outcome of this recommendation will be one of the first items to be dealt with by the Council.

"Zoning.—It is gratifying to see the 4W1 broadcasts are being maintained regularly, and that increasing numbers, although not taking part in the bookup, are at least listening to the service. This feature is the quickest and most logical means of keeping in touch with members, but some thought should now be given to placing more responsibility on the Zoning Managers to assist and expand the network scheme, so as to embrace more and more of the members over a larger area. Some consideration will also need to be given to the 4W1 broadcasts in the future. The gallop poll will of course provide a guide as to how this would best be achieved.

"I mention the opportunity pass without having a crack at the other response which is forthcoming when positions on Council are available each year. Men elected to these positions cannot have any other business to attend to, and are willing to fill the gaps when the occasions arise. It is not sufficient to become a member and sit back and let the top to get all we can out of it; they should all be prepared to assist in the conduct of the Institute. I will admit that some of us may not be suited for some job or may not be able to spare the time, but we should be willing for activities of short duration during the year small committees with an organizer be appointed so that (1) it relieves Council members whose time is already overbooked; (2) it gives others a chance to show their organising ability.

"In conclusion, gentlemen, this concludes my 10th year as President. I think I have had a good time and I am sure you have too. I am very interested, in fact I will always be interested and too pleased to take part on committees and other Institute activities from time to time, I have met many more here in the Institute and made many friends. It has been a pleasure to work with present and previous Councillors and the support given by members has been, with very few exceptions, all that could be desired."

ANNUAL DINNER

The 15th Annual Dinner was held on 25th March with an attendance of 48. The retiring President, 4AW, occupied the chair. Visitors included Mr. P. Andrew, Mr. Lynham (R.I. Dept.), Mr. R. Spence (L.R.), as well as representatives from C.F.R.O., N.R., and the R.I. Dept. Country members present were 4GH from Maryborough, 4XR, 4CR, 4RA from Gympie. As most members were away on holiday, the dinner at guessing the frequency of a 7 Mc. xtal, 4RC was the closest to it with 7132 Kc., the exact frequency being 7135 Kc. The prize was a midge electric iron.

4RT proposed the toast of both the outgoing and the new Council; 4AW responded. The toast of the R.I. Branch was proposed by 4FP and in reply Mr. Andrews said, inter alia, "congratulations to the old and new Presidents and Council for their help and I'm sure from our point of view the R.I. Branch will be a great help to us. You have come to us and we go to you for help. I think there is every reason to expect that the present conditions will remain the same. The Department to the W.I.A. the success of Amateur Radio. Change and new ideas will have the sympathy of the Department. We stepped up inspections a bit so as to get a better picture of the situation. I would assure you we rely on Hams to respect the regulations. I think the new idea of the committee bringing under notice good work done by Hams is an excellent idea."

A competition to write down 10 prefixes from a list read by the President, then 10 countries from a list read by the President, and a 5-minute speaker. Competition to write down the States of the U.S.A. gave 4PR a pair of 603s and a 5R4GY.

As we write these notes we have learnt that 4EL has been transferred and relinquishes the post of QSL officer. Two nominations have been received, namely 4JF and 4PR. A ballot is to be taken.

MARYBOROUGH ZONE

Manager 4GH—4KG gave away his quad and is now at a G5P. 4GH heard only on 7 Mc. c.w. Local lads have organized a continuous DX contest. Result for the first month is tie between 4AL and 4BD. The trophy is a handily mounted mounted trophy. 4KG is a very good operator. His h.c.1 trouble, hopes to get his telephone pole erected soon. 4BT making a comeback on 40 and 20.

DOWNNS ZONE

Manager 4CG—4CH has forsaken the Ipswich Zone for the colder climate of Warwick. 4TY is active in emergency net. Heard 4DA working 4GB on 40. 4GB working 4H5, hopes to renew activity in April. 4IP is active on 40. 4KK still active from Milmerra. 4SG re-building house in lieu of rig. 4RJ firing up again on 14 Mc. 4GR praying for rain, it takes only a "Almy whisp of floating mist" (Longloose) to kick off his private 39 power leak.

In conclusion we express our thanks to all those who gave us their support in the recent ballot.

SOUTH AUSTRALIA

The monthly general meeting for March was held to a somewhat smaller attendance than usual, in fact by looking hard, one could find a couple of vacant seats, a somewhat unusual occurrence these last few months. The reason for this was that 4W1 had leaked out that the agenda was to be discussed at length, and need any more be said? The members who attended in the hope that they would be able to see the films which were to be presented and then leave, were dealt a dirty blow by the fact that the agenda was discussed first and then the films. 4W1's description of the matter of the meeting is necessary therefore, except to say that most of the members sank into a state of somnolence during the agenda, revived slightly for "smoko" and QSL. 4W1's remarks were very good, and the presentation of excellent short subjects presented under the able hands of projectionist, Gordon Bowen (5XU).

A slight diversion was presented by 3FR (1 must be a bit of a troublemaker) who brought a matter of trifling and sometimes unnecessary "Blasters" from Advisory Council members. 5JD, who makes it a principle to oppose anything suggested by 3FR, rose to his feet and the assembled members (who scented blood) and proceeded to speak against the matter under discussion. So strong is 3FR's sense of fair-play, that spirit, and regard for the feelings of others, that his severe opposition became a speech of support, and did much to bring the matter to a satisfactory conclusion. To cheer up those who hoped that the evening's work might come of the discussion. Jack did it to me after the meeting. "One of these days I will take a poke at you, you old so and so." Such disgusting conversation.

Among the very welcome visitors were Messrs. J. West, E. Hyman, M. Burford, J. Parkinson, J. Smith (SAJ), Eric Zahnd and J. Till (4MD), Paul Rohan (ORIVE), and D. Kelly (CZAAAP, now 5DK).

5GD told me at the meeting that he had received a letter from Dr. Adey, who is now in England, and that Ross had wished to be remembered to his "fat tummy" friend. If I have told him once I have told him a thousand times that it is not, it is simply a mistake.

There is no doubt about the power of the press, this time last year, with suitable prologues from me, the members were very keen to see the film with me saying nothing in case I was tipped out, it looks as if Council will have to co-opt several members because of a lack of nominations.

I hate to keep referring to 4W1's pipe, but I am told on good authority that our night recently he went swimming at Semaphore and dropped the said pipe on the shore. Next morning he went down to the shore to get the pipe, and about the edge of the water, with several interested spectators amazed that the water would not come any higher, try as hard as he could. Only King could tell the story. The Talking Pipe only King reminds me that the one that 5RT was smoking at the meeting would give Wk. a shake-up, but at 4000 ft. it is a bit of a pipe.

Everybody will regret the fact that 5LW has decided to resign from the Council owing to pressure of business (no not monkey business). Ross has done a good job of programme arranging, and his resignation will be a great loss to the Division. To throw in the towel and will vacate the secretarial chair at the end of this month. It is my tip that he will be replaced by 4RT. It is my tip that his deputy will be wrong, but there you are.

The 20,000 QSL cards presented to the VK5 Division by the South Australian Tourist Bureau are almost ready for distribution and the sample

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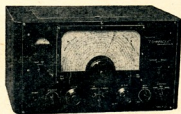
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cards on view at the meeting look a splendid job of work. It is suggested that these cards be used for DX contacts and for people like me who cannot work DX. These cards are a real find.

I don't know whether to thank or query the VKs who wrote a letter of appreciation to me and said that he had never read anything like the way that I write it. A klick in the pants or a pat on the back OM? Which reminds me, there have been no ads in the local paper for some time. Federal Bureau of Investigation, or otherwise. Can it be that I am losing my punch!

It was nice to see that he showed up an aerial (a long wire) built to very rough dimensions, and worked the world for a couple of nights. Pulling it down, he pruned it with meticulous care, hoisted it up and it worked like a charm. I have heard nothing since. You amaze me, my dark friend.

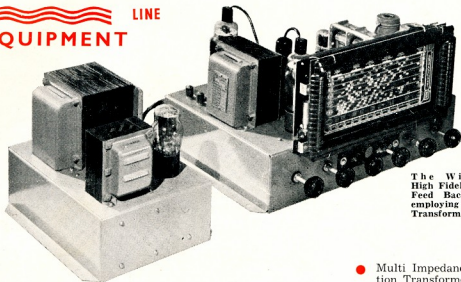
Please skip this next paragraph dear reader, it is a private message to the Editor, Tommy, last month he asked you to speak nicely to that VK who was talking about the OM, but apparently you forgot, because he was on the air again this month, and when another VK was telling my brother-in-law that he always read the VK's notes and thought they made good reading, the other nasty VK broke in and said, "Break it down old man, if the local VKs don't like it, they will never hear the last of it." He did Tommy, true as hell.

Somebody wrote to me and said that my paragraph in the local paper re 5MD resigning from the VKS Division was capable of misinterpretation. Recent events in VKs give that the lie I think. A paragraph in the local paper, at the moment, with no other certificates of membership in it.

I received a copy of the Northern Net "Spitter" and oh boy, what a "new look" copy it was. Several of the editors and I were asked to look at it. It turns out a huge success. Initiative like that deserves all the co-operation it can get, so rally round this publication gang and help to make it prosper. It is a credit to all who help it.

By the time these notes are being read, VKs will be the scene of a very strong "tidy-ynk" and to the VKs Division, I wish to say that I am into a secret. 5GM will be in Sydney by then and by now chaps, you will know that I have not been guilty of exaggeration. Need I say any more! Several of the feminine readers of this column have asked me what the correct procedure to adopt when they speak over the air to other Amateurs. Now this is right up my alley, as I keep a club house in the VKS Division. I have heard of the charming better three quarters aloud decide that the would like to speak over the air. Now the first and principal thing to remember is that you should always be friendly. 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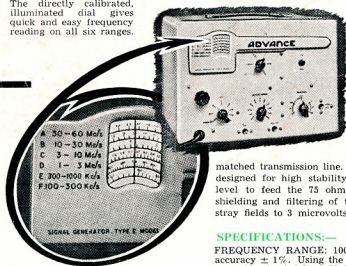
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“ADVANCE” SIGNAL GENERATOR Type “E”

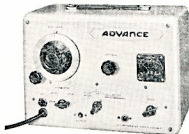
The problem of poor attenuation, especially at frequencies above 10 Mc., has been overcome by the design of a properly shielded constant impedance 75 ohms ladder network whose output is taken to a matched transmission line. A Transistron R.F. Oscillator circuit is used, designed for high stability and giving the necessary constant output level to feed the 75 ohms attenuator system. Careful attention to shielding and filtering of the power supply has reduced leakage and stray fields to 3 microvolts at 60 megacycles.

SPECIFICATIONS:—

FREQUENCY RANGE: 100 Kc. to 60 Mc. in six ranges, calibration accuracy $\pm 1\%$. Using the second harmonic of Range A, the frequency range is extended from 60-120 Mc. Also on this range, British television sound and vision frequencies are marked. **OUTPUT VOLTAGE** is obtained from end of a 75 ohm matched transmission line. Output continuously variable from 1 microvolt to 100 millivolts. **OUTPUT IMPEDANCE:** When transmission line unterminated, 75 ohms. When terminated, three values obtainable: 37 ohms, 10 ohms, or 10 ohms through standard all-wave dummy aerial. **1-VOLT SOCKET:** Steady output of approximately 1 volt is available at this socket. Output impedance is about 50 ohms. **INTERNAL MODULATION:** 30% at 400 c.p.s. approx. The output impedance is 50,000 ohms at maximum output. **R.F. LEAKAGE:** Oscillator section well shielded and external fields negligible (less than 3 microvolts). **ACCESSORIES:** 1 EF50 Valve (Mullard or Sylvania), 1 6J5G Valve, 1 6X5G Valve, 1 Pilot Lamp type M.E.S. 11 mm. 6.5 volt, 1 Termination Pad and Dummy Aerial, type T.P.1, 1 Shielded A.F. lead, complete with Plug and Crocodile Clips, type P.L.22. **POWER SUPPLY:** 110-210-230-250 volts 40-100 c.p.s., consumption approx. 15 watts. **DIMENSIONS:** 13" x 10½" x 7½" deep overall. **WEIGHT:** 15 lbs. net. **FINISH:** Housed in attractive steel case, durable cream enamel, leather carrying handle.

“ADVANCE” AUDIO GENERATOR Type “F”

This instrument is a particularly flexible power source at audio frequencies, for measurements on the frequency characteristics of transformers, filters, transmission lines, and loudspeakers. Its attenuated ranges will also be found particularly useful. This instrument uses the harmonics of two radio frequency oscillators mixed together to give an audio frequency note of excellent wave form and free from effects of pulling. The instrument is entirely British made and is guaranteed for twelve months.



SPECIFICATIONS:—

FREQUENCY RANGE: 100 cycles to 10,000 cycles. **ACCURACY:** $2\% \pm 25$ cycles. **POWER OUTPUT:** 1 watt, level to ± 6 db over full range. **OUTPUT IMPEDANCES:** 600 ohms, 5 ohms, or 10 ohm attenuator. **DISTORTION:** Total undesired signal is less than 3%, measured at 1,000 cycles with matched 600 ohm load at 1 watt output. **VOLTMETER:** Range switched automatically with impedance switch. Two ranges: 0-40v., 0-4v. **POWER SUPPLY:** A.C. Power Supply 110-210-230-250v., 40-100 cycles. Power consumption is approximately 40 watts. **VALVES:** The following valves are supplied with the instrument—one ECH35, one 6J5, one 6X5, one EL33, one Indicator Lamp type M.E.S. 11 mm. 6.5v. **LEADS:** A complete set of leads is provided. **DIMENSIONS:** 13" x 10½" x 7½" deep overall. **WEIGHT:** 16 lbs. net. **FINISH:** The instrument is housed in an attractive steel case, the panel and case being sprayed durable cream enamel. A leather carrying handle is provided.

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